## REMARKS

Claims 13-16 are pending in the above-identified application and stand ready for further action on the merits. Regarding the amendment to claim 13: A) support for the phrase "reinstate bone disorder" can be found in lines 1-5 of page 9 of the specification; B) support for the phrase "osteoclast related" can be found in the examples; C) support for the tumor related disorders can be found in cancelled claim 7. Support for new claim 16 can be found in claim 14 and lines 1-4 of page 21. No new matter has been added, and there is no need for a further search.

## Interview

Applicants note with appreciation the Examiner taking the time to discuss the outstanding issues with Applicant's representative during an Interview on March 1, 2000. The Interview was very helpful in clarifying the issues. The Examiner is reminded that she indicated this Amendment *would be entered* even though the application is in the after-final stage of prosecution. The following is in response to the Examiner's remarks made during the Interview.

Rejections Over Gomi et al

Claims 7, 9, 10 and 13 stand rejected under 35 USC 102(b) as being anticipated by Gomi et al **and** claims 7, 9, 10 and 13-15 stand rejected under 35 USC 103 as being unpatentable over Gomi et al. Applicants respectfully traverse the rejections.

Gomi et al teach the treatment of human osteosarcoma using ReIFN-γ and ReIFN-β, see the abstract.

Applicants respectfully submit that the presently claimed invention is neither anticipated nor made obvious by Gomi et al, since the presently claimed invention does not encompass the treatment of osteosarcoma with ReIFN-γ and ReIFN-β. As such, withdrawal of the rejections is respectfully requested.

Rejections Over Modi

Claims 7, 9, 10, 13 and 14 stand rejected under 35 USC 102(b) as being anticipated by Modi US 5,417,982. Applicants respectfully traverse the rejection.

Applicants submit that for a reference to properly anticipate a claimed invention, the reference must enable the skilled artisan how to make and use the invention. *Akzo N.V. v. International Trade Commission*, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986); *In re*

*Donohue*, 226 USPQ 619 (Fed. Cir. 1985).

The entire disclosure of Modi, which the Examiner is relying on in making the determination that the present claims are anticipated by Modi is found in lines 62-68 of column 4 and reads as follows,

> "The present invention may be used to entrap other growth hormones in a polymer matrix, e.g. estrogens, androgens, insulin, IGF, interleukin-I and interleukin-II. Cytokins such as *interferon-β* and *interferon-γ*, used in the treatment of diseases such as *osteoporosis*, diabetes mellitus and multiple sclerosis may also benefit from the present invention."(emphasis added)

Clearly, this is no more than a wish list. There is no substantive evidence that interferon-β and interferon-γ can be used in the treatment of osteoporosis. The disclosure of Modi is almost exclusively concerned with the controlled release of drugs or hormones in biodegradable polymer microspheres. Modi prefers the hormone BST be used with the microspheres, see lines 58-59 of column 3. A reference which leads one of ordinary skill in the art away from the claimed invention cannot render it unpatentably obvious. *Dow Chem. Co. v. American Cyanamid Co.* 816 F2d 617, (CAFC 1987).

Furthermore, the disclosure is severely limited in view of the ultimate *in vivo* goal of the invention. Modi does not provide any *in vivo* data, and relies upon a showing that a coating consisting of starch and ethylhydroxycellulose will release either Myoglobin or FHSA over a period of up to 120 days in a distilled water solution as measured by UV absorbance. There is no clear guidance as to what modifications to the exemplified coatings are required for *in vivo* application. Additionally, it is not even clear what disease(s)/conditions Myoglobin or FHSA are intended to treat.

As Dr. Teruo Matsushita-Nakadate indicates in the attached Declaration, the level of ordinary skill of the artisan does not amount to the ability to treat osteoporosis with interferon-β or interferon-γ based upon the limited disclosure of Modi in conjunction with the available art. In other words, the treatment of osteoporosis with interferon-β or interferon-γ requires inventive skill. Modi does not teach: i) dosages per human body weight; ii) time intervals between dosages; iii) contraindications; iv) the difference in types of coatings to be used for oral vs. injectable administration; v) preferred types of coatings; and vi) the relationship between coating type, average

particle diameter and percent microspheres entering the blood stream for the preferred oral administration.

The skilled artisan would also question the reliability of the microsphere coating of Modi, since there was no difference between the coating in Example I and Example II, and yet 11% of the myoglobin was released in **5** days in Example I whereas the same quantity of FHSA was released in only **2** days in Example II.

Furthermore, Modi does not teach the percent microspheres capable of being adsorbed by the digestive system into the blood stream after the preferred method of oral ingestion. Clearly, this relationship is critical considering the span of time required for release of the active ingredient as shown by the examples.

In conclusion, Modi does not enable the skilled artisan to treat osteoporosis with interferon-$\beta$ and/or interferon-$\gamma$, and as such, Applicants respectfully request the rejection be withdrawn.

Regarding new claim 16, Applicants respectfully submit that claim 16 is further distinguished from Modi, since Modi does not teach or fairly suggest treating the patient with 10,000 to 10,000,000 units per day.

Rejections Over Michalevicz

Claims 13-15 stand rejected under 35 USC 102(b) as being anticipated by Michalevicz US 5,104,653. Applicants respectfully traverse the rejection.

In response, Applicants have amended the claims to exclude rheumatoid arthritis as a possible bone disorder. Thus, Applicants respectfully request the rejection be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, the invention as instantly claimed is in condition for allowance. A Notice to such effect is earnestly solicited. In the event that the amendment does not place the present application into condition for allowance, entry thereof is respectfully requested as placing the present application into better condition for appeal.

In the event there are any additional matters remaining in this application, the Examiner is strongly encouraged to contact the undersigned, at (703) 205-8000 in order to discuss these matters.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a two (2 month extension of time for filing a reply in connection with the present application, and the required fee of $380.0 is attached hereto.

If necessary, the Commissioner is hereby authorized in this concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Enclosed: Declaration under 37 CFR 1.132 by
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